



## RAW SEQUENCE LISTING

DATE: 03/21/2002

PATENT APPLICATION: US/09/993,844

TIME: 10:27:12

Input Set : A:\033072-026.ST25.txt

Output Set: N:\CRF3\03212002\I993844.raw

5 <110> APPLICANT: Oakley, Robert H.  
 6 Barak, Lawrence S.  
 7 Laporte, Stephane A.  
 8 Caron, Marc G.  
 10 <120> TITLE OF INVENTION: Modified G-Protein Coupled Receptors  
 12 <130> FILE REFERENCE: 033072-026  
 14 <140> CURRENT APPLICATION NUMBER: US 09/993,844  
 15 <141> CURRENT FILING DATE: 2001-11-05  
 17 <150> PRIOR APPLICATION NUMBER: US 60/245,772  
 18 <151> PRIOR FILING DATE: 2000-11-03  
 20 <150> PRIOR APPLICATION NUMBER: US 60/260,363  
 21 <151> PRIOR FILING DATE: 2001-01-08  
 23 <160> NUMBER OF SEQ ID NOS: 81  
 25 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
 27 <210> SEQ ID NO: 1  
 28 <211> LENGTH: 371  
 29 <212> TYPE: PRT  
 30 <213> ORGANISM: Artificial Sequence  
 32 <220> FEATURE:  
 33 <223> OTHER INFORMATION: amino acid sequence of wild-type V2R  
 35 <400> SEQUENCE: 1  
 36 Met Leu Met Ala Ser Thr Thr Ser Ala Val Pro Gly His Pro Ser Leu  
 37 1 5 10 15  
 38 Pro Ser Leu Pro Ser Asn Ser Ser Gln Glu Arg Pro Leu Asp Thr Arg  
 39 20 25 30  
 40 Asp Pro Leu Leu Ala Arg Ala Glu Leu Ala Leu Leu Ser Ile Val Phe  
 41 35 40 45  
 42 Val Ala Val Ala Leu Ser Asn Gly Leu Val Leu Ala Ala Leu Ala Arg  
 43 50 55 60  
 44 Arg Gly Arg Arg Gly His Trp Ala Pro Ile His Val Phe Ile Gly His  
 45 65 70 75 80  
 46 Leu Cys Leu Ala Asp Leu Ala Val Ala Leu Phe Gln Val Leu Pro Gln  
 47 85 90 95  
 48 Leu Ala Trp Lys Ala Thr Asp Arg Phe Arg Gly Pro Asp Ala Leu Cys  
 49 100 105 110  
 50 Arg Ala Val Lys Tyr Leu Gln Met Val Gly Met Tyr Ala Ser Ser Tyr  
 51 115 120 125  
 52 Met Ile Leu Ala Met Thr Leu Asp Arg His Arg Ala Ile Cys Arg Pro  
 53 130 135 140  
 54 Met Leu Ala Tyr Arg His Gly Ser Gly Ala His Trp Asn Arg Pro Val  
 55 145 150 155 160  
 56 Leu Val Ala Trp Ala Phe Ser Leu Leu Leu Ser Leu Pro Gln Leu Phe  
 57 165 170 175

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58 Ile Phe Ala Gln Arg Asn Val Glu Gly Gly Ser Gly Val Thr Asp Cys
59           180                      185                      190
60 Trp Ala Cys Phe Ala Glu Pro Trp Gly Arg Arg Thr Tyr Val Thr Trp
61           195                      200                      205
62 Ile Ala Leu Met Val Phe Val Ala Pro Thr Leu Gly Ile Ala Ala Cys
63           210                      215                      220
64 Gln Val Leu Ile Phe Arg Glu Ile His Ala Ser Leu Val Pro Gly Pro
65 225                      230                      235                      240
66 Ser Glu Arg Pro Gly Gly Arg Arg Arg Gly Arg Arg Thr Gly Ser Pro
67           245                      250                      255
68 Gly Glu Gly Ala His Val Ser Ala Ala Val Ala Lys Thr Val Arg Met
69           260                      265                      270
70 Thr Leu Val Ile Val Val Val Tyr Val Leu Cys Trp Ala Pro Phe Phe
71           275                      280                      285
72 Leu Val Gln Leu Trp Ala Ala Trp Asp Pro Glu Ala Pro Leu Glu Gly
73           290                      295                      300
74 Ala Pro Phe Val Leu Leu Met Leu Leu Ala Ser Leu Asn Ser Cys Thr
75 305                      310                      315                      320
76 Asn Pro Trp Ile Tyr Ala Ser Phe Ser Ser Val Ser Ser Glu Leu
77           325                      330                      335
78 Arg Ser Leu Leu Cys Cys Ala Arg Gly Arg Thr Pro Pro Ser Leu Gly
79           340                      345                      350
80 Pro Gln Asp Glu Ser Cys Thr Thr Ala Ser Ser Ser Leu Ala Lys Asp
81           355                      360                      365
82 Thr Ser Ser
83           370
86 <210> SEQ ID NO: 2
87 <211> LENGTH: 413
88 <212> TYPE: PRT
89 <213> ORGANISM: Artificial Sequence
91 <220> FEATURE:
92 <223> OTHER INFORMATION: amino acid sequence of wild-type beta2AR
94 <400> SEQUENCE: 2
95 Met Gly Gln Pro Gly Asn Gly Ser Ala Phe Leu Leu Ala Pro Asn Arg
96 1           5           10           15
97 Ser His Ala Pro Asp His Asp Val Thr Gln Gln Arg Asp Glu Val Trp
98           20           25           30
99 Val Val Gly Met Gly Ile Val Met Ser Leu Ile Val Leu Ala Ile Val
100           35           40           45
101 Phe Gly Asn Val Leu Val Ile Thr Ala Ile Ala Lys Phe Glu Arg Leu
102           50           55           60
103 Gln Thr Val Thr Asn Tyr Phe Ile Thr Ser Leu Ala Cys Ala Asp Leu
104 65           70           75           80
105 Val Met Gly Leu Ala Val Val Pro Phe Gly Ala Ala His Ile Leu Met
106           85           90           95
107 Lys Met Trp Thr Phe Gly Asn Phe Trp Cys Glu Phe Trp Thr Ser Ile
108           100          105          110
109 Asp Val Leu Cys Val Thr Ala Ser Ile Glu Thr Leu Cys Val Ile Ala
110           115          120          125

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111 Val Asp Arg Tyr Phe Ala Ile Thr Ser Pro Phe Lys Tyr Gln Ser Leu
112      130      135      140
113 Leu Thr Lys Asn Lys Ala Arg Val Ile Ile Leu Met Val Trp Ile Val
114 145      150      155      160
115 Ser Gly Leu Thr Ser Phe Leu Pro Ile Gln Met His Trp Tyr Arg Ala
116      165      170      175
117 Thr His Gln Glu Ala Ile Asn Cys Tyr Ala Asn Glu Thr Cys Cys Asp
118      180      185      190
119 Phe Phe Thr Asn Gln Ala Tyr Ala Ile Ala Ser Ser Ile Val Ser Phe
120      195      200      205
121 Tyr Val Pro Leu Val Ile Met Val Phe Val Tyr Ser Arg Val Phe Gln
122      210      215      220
123 Glu Ala Lys Arg Gln Leu Gln Lys Ile Asp Lys Ser Glu Gly Arg Phe
124 225      230      235      240
125 His Val Gln Asn Leu Ser Gln Val Glu Gln Asp Gly Arg Thr Gly His
126      245      250      255
127 Gly Leu Arg Arg Ser Ser Lys Phe Cys Leu Lys Glu His Lys Ala Leu
128      260      265      270
129 Lys Thr Leu Gly Ile Ile Met Gly Thr Phe Thr Leu Cys Trp Leu Pro
130      275      280      285
131 Phe Phe Ile Val Asn Ile Val His Val Ile Gln Asp Asn Leu Ile Arg
132      290      295      300
133 Lys Glu Val Tyr Ile Leu Leu Asn Trp Ile Gly Tyr Val Asn Ser Gly
134 305      310      315      320
135 Phe Asn Pro Leu Ile Tyr Cys Arg Ser Pro Asp Phe Arg Ile Ala Phe
136      325      330      335
137 Gln Glu Leu Leu Cys Leu Arg Arg Ser Ser Leu Lys Ala Tyr Gly Asn
138      340      345      350
139 Gly Tyr Ser Ser Asn Gly Asn Thr Gly Glu Gln Ser Gly Tyr His Val
140      355      360      365
141 Glu Gln Glu Lys Glu Asn Lys Leu Leu Cys Glu Asp Leu Pro Gly Thr
142      370      375      380
143 Glu Asp Phe Val Gly His Gln Gly Thr Val Pro Ser Asp Asn Ile Asp
144 385      390      395      400
145 Ser Gln Gly Arg Asn Cys Ser Thr Asn Asp Ser Leu Leu
146      405      410
149 <210> SEQ ID NO: 3
150 <211> LENGTH: 370
151 <212> TYPE: PRT
152 <213> ORGANISM: Artificial Sequence
154 <220> FEATURE:
155 <223> OTHER INFORMATION: amino acid sequence of beta2-AR-V2R chimera
157 <400> SEQUENCE: 3
158 Met Gly Gln Pro Gly Asn Gly Ser Ala Phe Leu Leu Ala Pro Asn Arg
159 1      5      10      15
160 Ser His Ala Pro Asp His Asp Val Thr Gln Gln Arg Asp Glu Val Trp
161      20      25      30
162 Val Val Gly Met Gly Ile Val Met Ser Leu Ile Val Leu Ala Ile Val
163      35      40      45

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```

164 Phe Gly Asn Val Leu Val Ile Thr Ala Ile Ala Lys Phe Glu Arg Leu
165      50                      55                      60
166 Gln Thr Val Thr Asn Tyr Phe Ile Thr Ser Leu Ala Cys Ala Asp Leu
167 65                      70                      75                      80
168 Val Met Gly Leu Ala Val Val Pro Phe Gly Ala Ala His Ile Leu Met
169                      85                      90                      95
170 Lys Met Trp Thr Phe Gly Asn Phe Trp Cys Glu Phe Trp Thr Ser Ile
171                      100                      105                      110
172 Asp Val Leu Cys Val Thr Ala Ser Ile Glu Thr Leu Cys Val Ile Ala
173                      115                      120                      125
174 Val Asp Arg Tyr Phe Ala Ile Thr Ser Pro Phe Lys Tyr Gln Ser Leu
175                      130                      135                      140
176 Leu Thr Lys Asn Lys Ala Arg Val Ile Ile Leu Met Val Trp Ile Val
177 145                      150                      155                      160
178 Ser Gly Leu Thr Ser Phe Leu Pro Ile Gln Met His Trp Tyr Arg Ala
179                      165                      170                      175
180 Thr His Gln Glu Ala Ile Asn Cys Tyr Ala Asn Glu Thr Cys Cys Asp
181                      180                      185                      190
182 Phe Phe Thr Asn Gln Ala Tyr Ala Ile Ala Ser Ser Ile Val Ser Phe
183                      195                      200                      205
184 Tyr Val Pro Leu Val Ile Met Val Phe Val Tyr Ser Arg Val Phe Gln
185                      210                      215                      220
186 Glu Ala Lys Arg Gln Leu Gln Lys Ile Asp Lys Ser Glu Gly Arg Phe
187 225                      230                      235                      240
188 His Val Gln Asn Leu Ser Gln Val Glu Gln Asp Gly Arg Thr Gly His
189                      245                      250                      255
190 Gly Leu Arg Arg Ser Ser Lys Phe Cys Leu Lys Glu His Lys Ala Leu
191                      260                      265                      270
192 Lys Thr Leu Gly Ile Ile Met Gly Thr Phe Thr Leu Cys Trp Leu Pro
193                      275                      280                      285
194 Phe Phe Ile Val Asn Ile Val His Val Ile Gln Asp Asn Leu Ile Arg
195                      290                      295                      300
196 Lys Glu Val Tyr Ile Leu Asn Trp Ile Gly Tyr Val Asn Ser Gly
197 305                      310                      315                      320
198 Phe Asn Pro Leu Ile Tyr Cys Arg Ser Pro Asp Phe Arg Ile Ala Phe
199                      325                      330                      335
200 Gln Glu Leu Leu Cys Ala Arg Gly Arg Thr Pro Pro Ser Leu Gly Pro
201                      340                      345                      350
202 Gln Asp Glu Ser Cys Thr Thr Ala Ser Ser Ser Leu Ala Lys Asp Thr
203                      355                      360                      365
204 Ser Ser
205      370
208 <210> SEQ ID NO: 4
209 <211> LENGTH: 382
210 <212> TYPE: PRT
211 <213> ORGANISM: Artificial Sequence
213 <220> FEATURE:
214 <223> OTHER INFORMATION: amino acid sequence of MOR-V2R chimera expressed
215      from the pEArrB-1/MOR vector

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Input Set : A:\033072-026.ST25.txt

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217 &lt;400&gt; SEQUENCE: 4

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218 Met Asp Ser Ser Thr Gly Pro Gly Asn Thr Ser Asp Cys Ser Asp Pro
219 1 5 10 15
220 Leu Ala Gln Ala Ser Cys Ser Pro Ala Pro Gly Ser Trp Leu Asn Leu
221 20 25 30
222 Ser His Val Asp Gly Asn Gln Ser Asp Pro Cys Gly Leu Asn Arg Thr
223 35 40 45
224 Gly Leu Gly Gly Asn Asp Ser Leu Cys Pro Gln Thr Gly Ser Pro Ser
225 50 55 60
226 Met Val Thr Ala Ile Thr Ile Met Ala Leu Tyr Ser Ile Val Cys Val
227 65 70 75 80
228 Val Gly Leu Phe Gly Asn Phe Leu Val Met Tyr Val Ile Val Arg Tyr
229 85 90 95
230 Thr Lys Met Lys Thr Ala Thr Asn Ile Tyr Ile Phe Asn Leu Ala Leu
231 100 105 110
232 Ala Asp Ala Leu Ala Thr Ser Thr Leu Pro Phe Gln Ser Val Asn Tyr
233 115 120 125
234 Leu Met Gly Thr Trp Pro Phe Gly Thr Ile Leu Cys Lys Ile Val Ile
235 130 135 140
236 Ser Ile Asp Tyr Tyr Asn Met Phe Thr Ser Ile Phe Thr Leu Cys Thr
237 145 150 155 160
238 Met Ser Val Asp Arg Tyr Ile Ala Val Cys His Pro Val Lys Ala Leu
239 165 170 175
240 Asp Phe Arg Thr Pro Arg Asn Ala Lys Ile Val Asn Val Cys Asn Trp
241 180 185 190
242 Ile Leu Ser Ser Ala Ile Gly Leu Pro Val Met Phe Met Ala Thr Thr
243 195 200 205
244 Lys Tyr Arg Gln Gly Ser Ile Asp Cys Thr Leu Thr Phe Ser His Pro
245 210 215 220
246 Thr Trp Tyr Trp Glu Asn Leu Leu Lys Ile Cys Val Phe Ile Phe Ala
247 225 230 235 240
248 Phe Ile Met Pro Ile Leu Ile Ile Thr Val Cys Tyr Gly Leu Met Ile
249 245 250 255
250 Leu Arg Leu Lys Ser Val Arg Met Leu Ser Gly Ser Lys Glu Lys Asp
251 260 265 270
252 Arg Asn Leu Arg Arg Ile Thr Arg Met Val Leu Val Val Ala Val
253 275 280 285
254 Phe Ile Val Cys Trp Thr Pro Ile His Ile Tyr Val Ile Ile Lys Ala
255 290 295 300
256 Leu Ile Thr Ile Pro Glu Thr Thr Phe Gln Thr Val Ser Trp His Phe
257 305 310 315 320
258 Cys Ile Ala Leu Gly Tyr Thr Asn Ser Cys Leu Asn Pro Val Leu Tyr
259 325 330 335
260 Ala Phe Leu Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe Cys Ala
261 340 345 350
262 Ala Ala Arg Gly Arg Thr Pro Pro Ser Leu Gly Pro Gln Asp Glu Ser
263 355 360 365
264 Cys Thr Thr Ala Ser Ser Ser Leu Ala Lys Asp Thr Ser Ser
265 370 375 380

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VERIFICATION SUMMARY

PATENT APPLICATION: US/09/993,844

DATE: 03/21/2002

TIME: 10:27:14

Input Set : A:\033072-026.ST25.txt

Output Set: N:\CRF3\03212002\I993844.raw